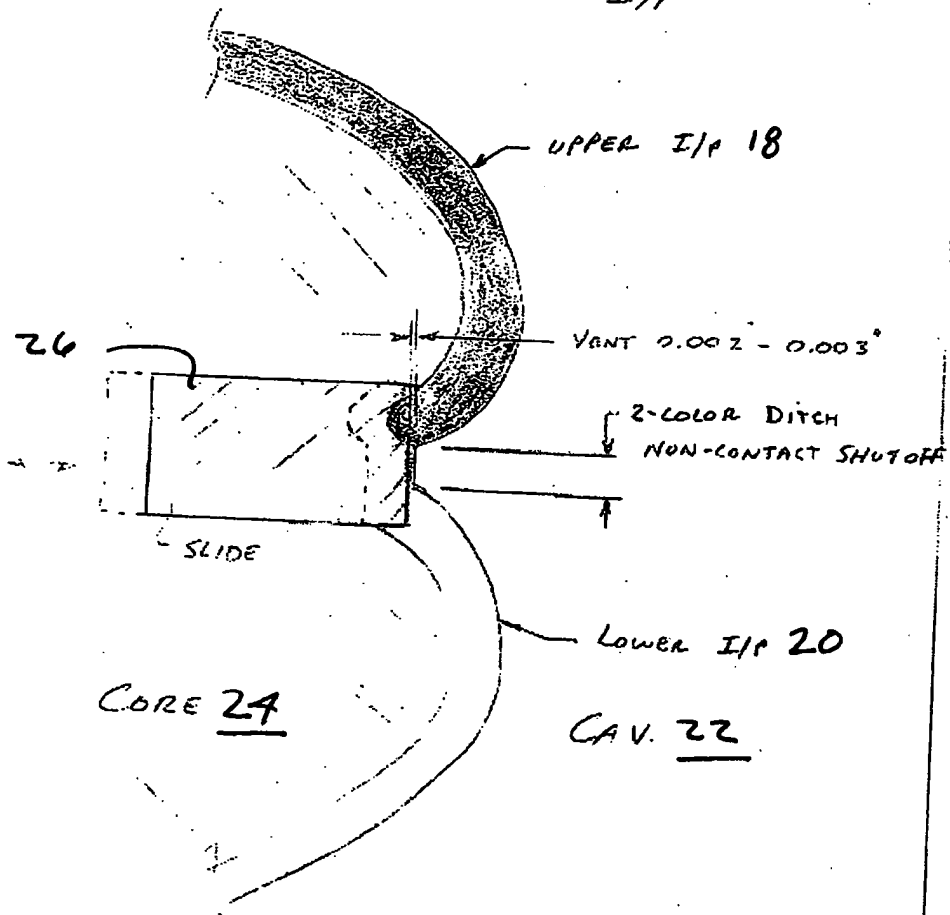


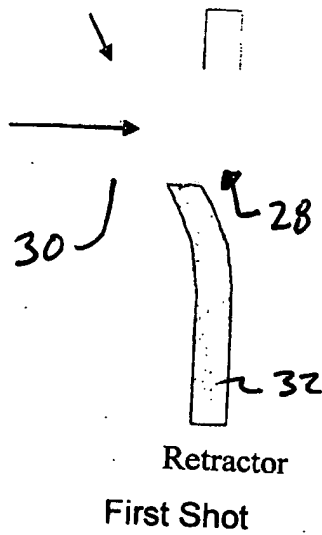
TWO SHOT INJECTION MOLDING CONCEPT
FOR 2-COLOR I/P



- ① INJECT UPPER I/P 18
- ② PULL BACK SLIDE 26
- ③ INJECT LOWER I/P 20

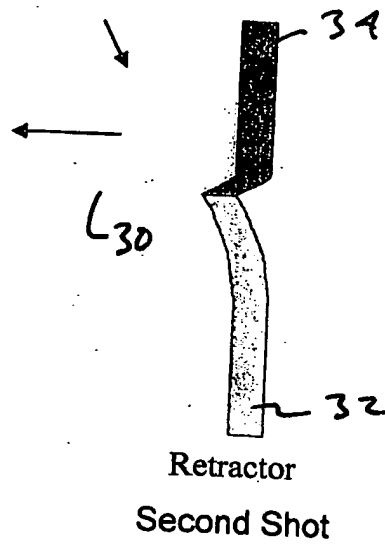
FIG. 4

FIG. 5



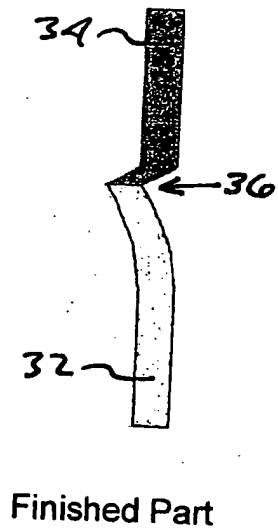
Retractor closes-off on the cavity half of the mold to prevent first shot from entering into upper portion of tool

FIG. 6

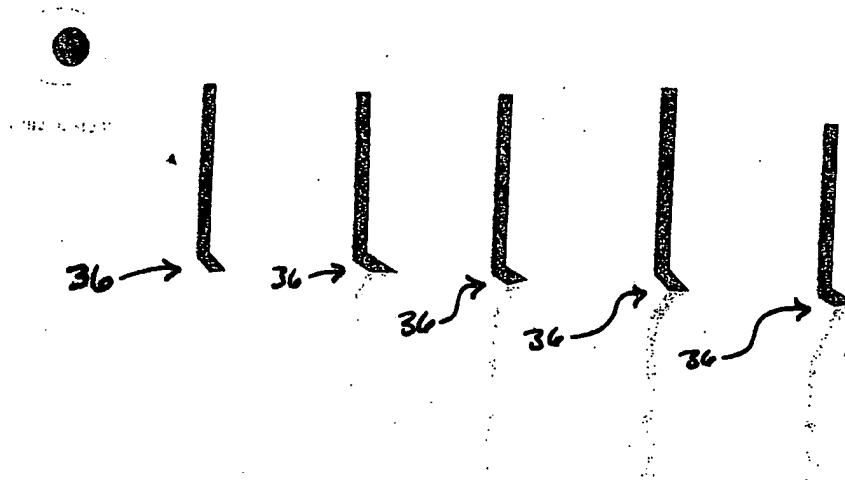


Retractor is pulled back wall stock thickness to open the upper portion of the tool. The second shot is injected and the stops flowing when it reaches the first material

FIG. 7



Molding Sequence



Examples of angled shut-off geometries. These allow the color intersection to be hidden from view

FIG. 8

Examples of angled shut-off geometries. These allow the color intersection to be hidden from view

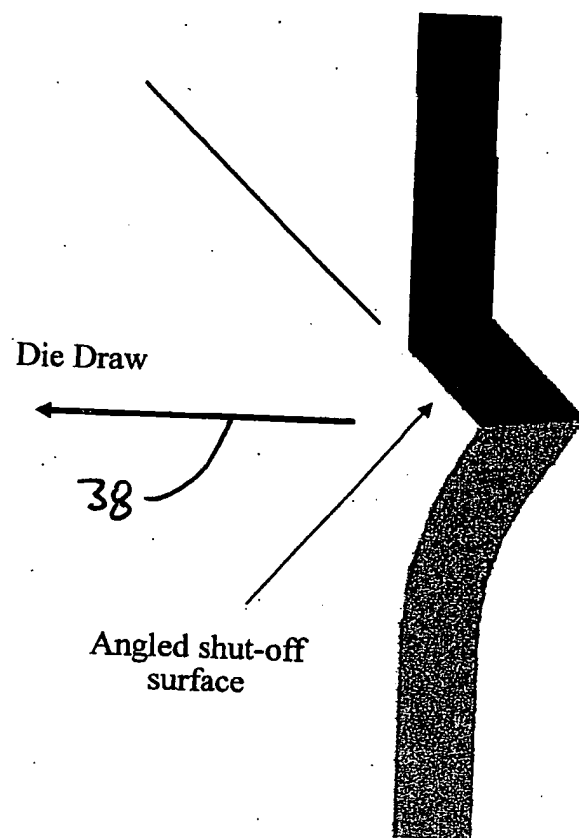


FIG. 9

2-color injection molded joint
concept

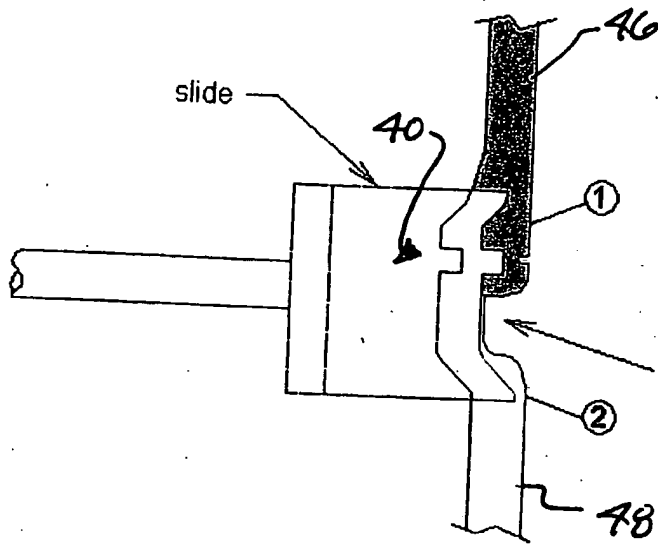


FIG. 12

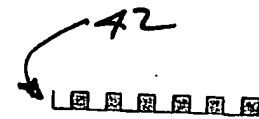


FIG. 10

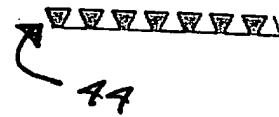


FIG. 11

2-color Injection molded IP
Concept

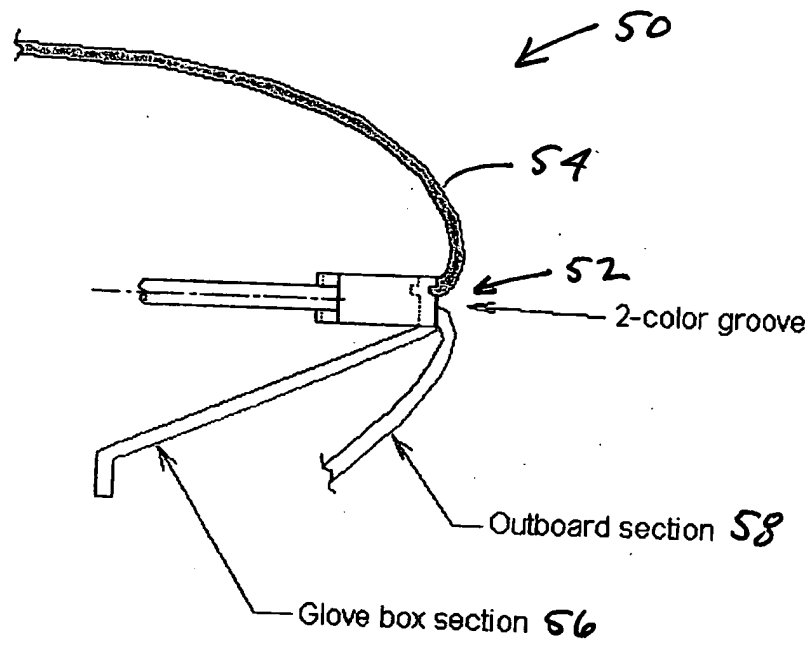


FIG. 13

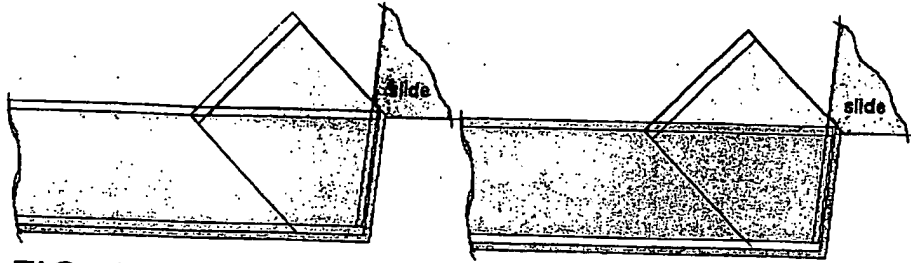


FIG. 14

FIG. 15

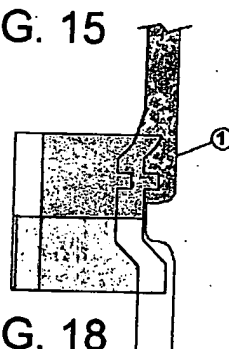
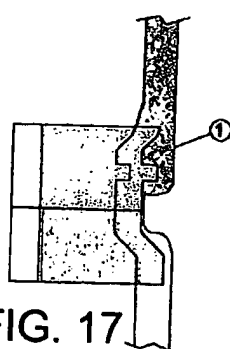
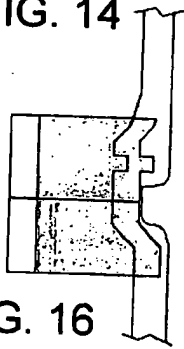


FIG. 16

FIG. 17

FIG. 18

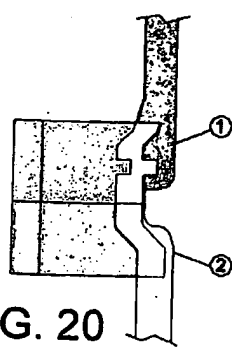
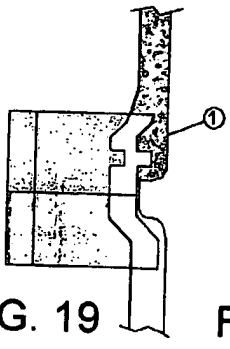
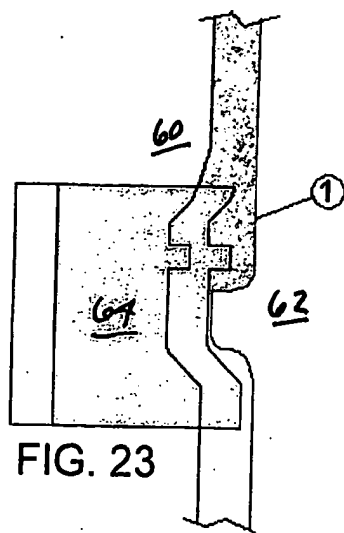
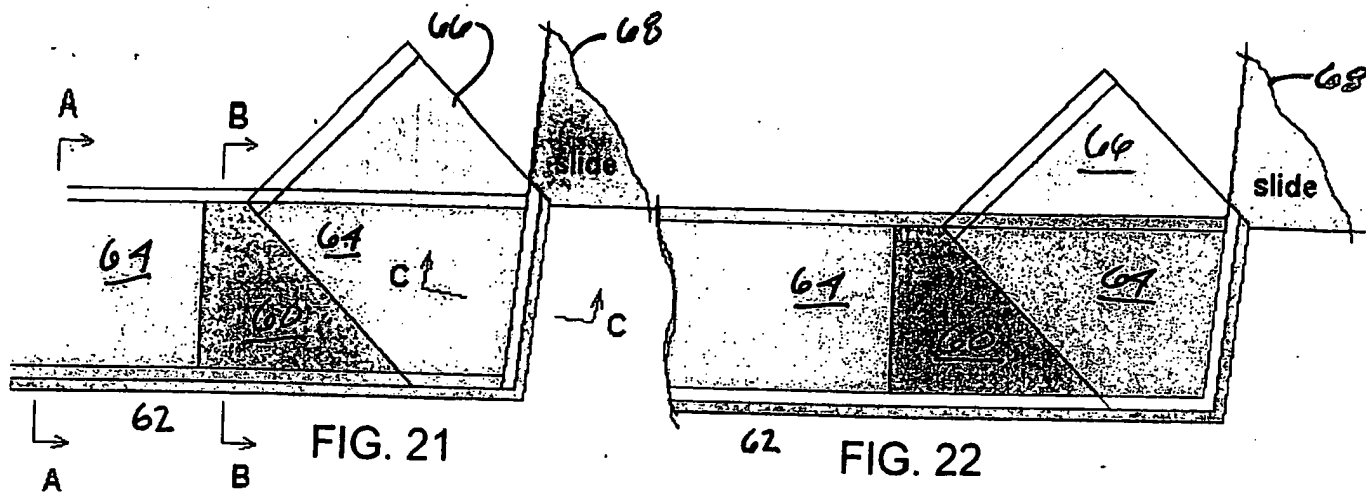


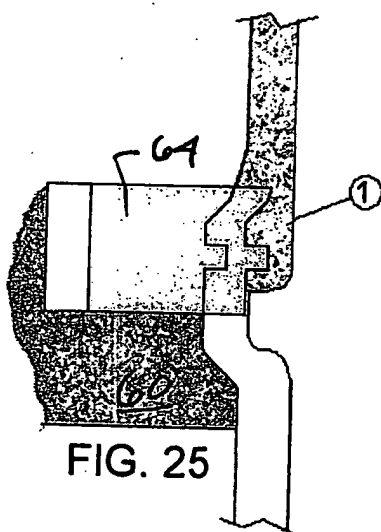
FIG. 19

FIG. 20

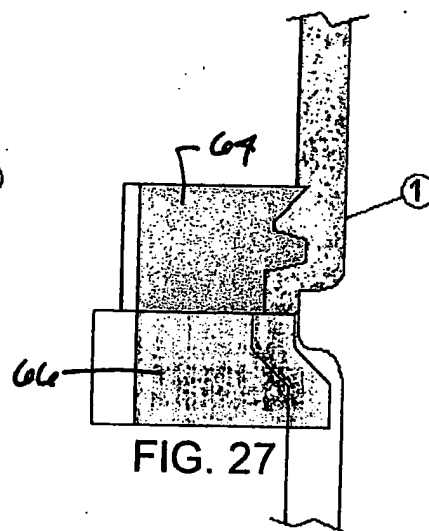
Retractor concept for allowing vertical walls (parallel to die draw) to be full material thickness



Section A-A



Section B-B



Section C-C

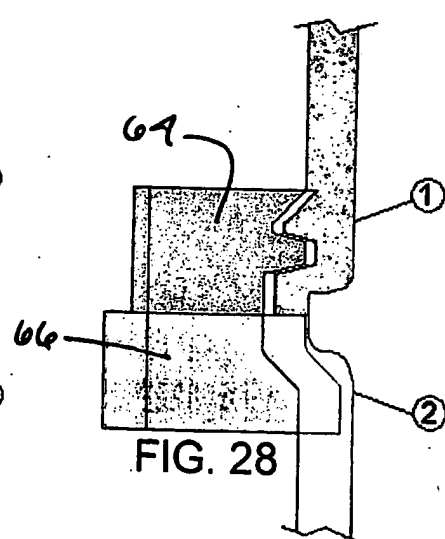
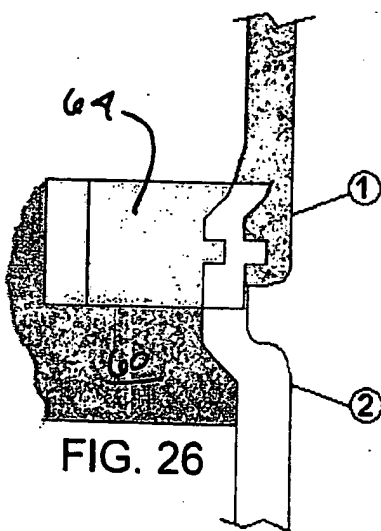
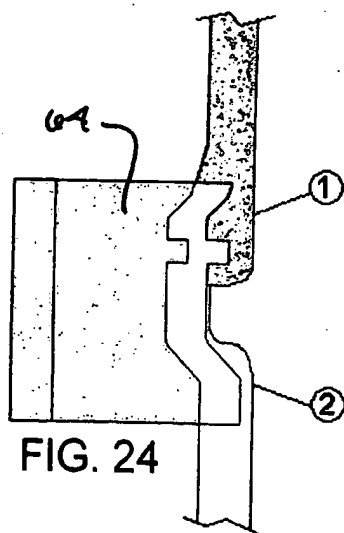


FIG. 29

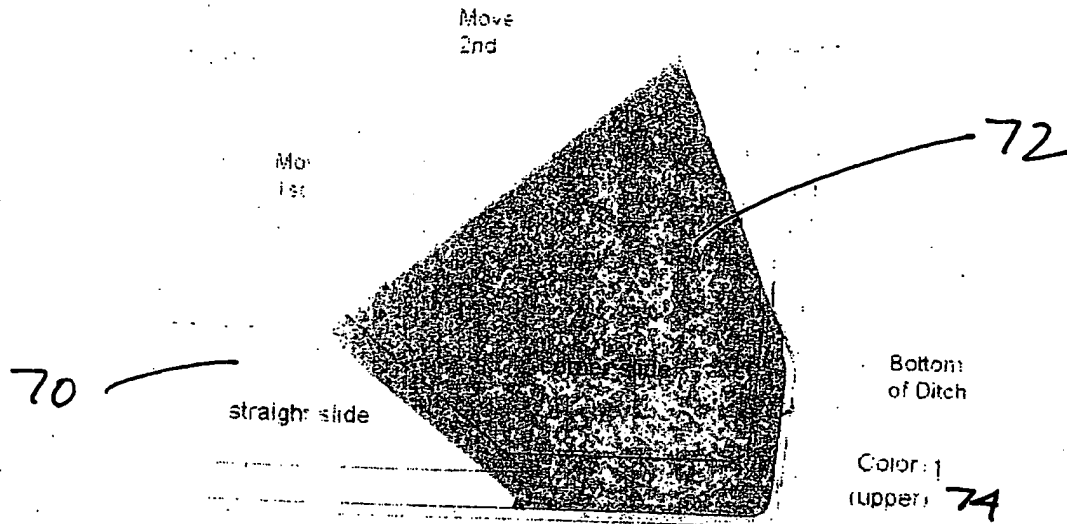
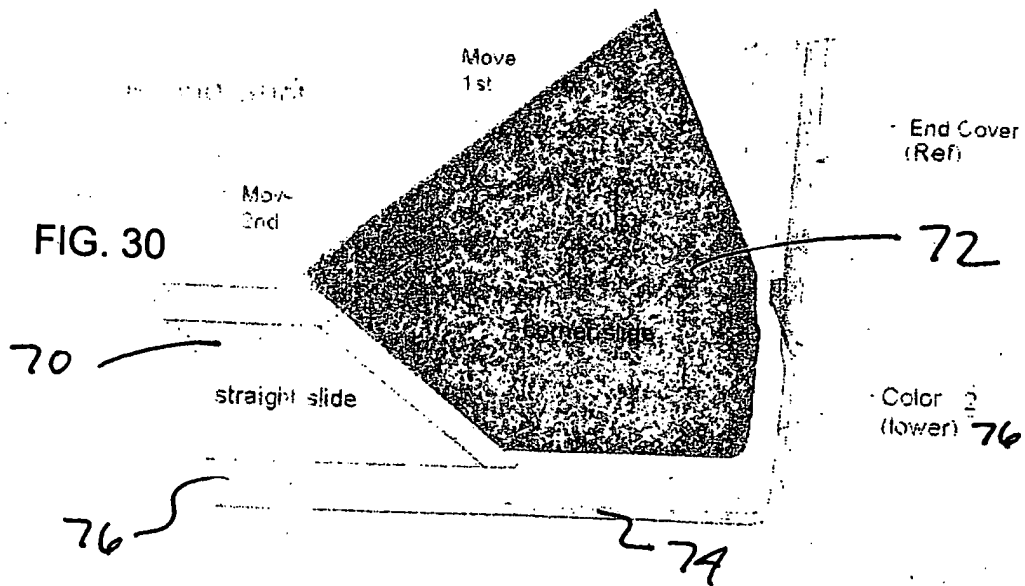
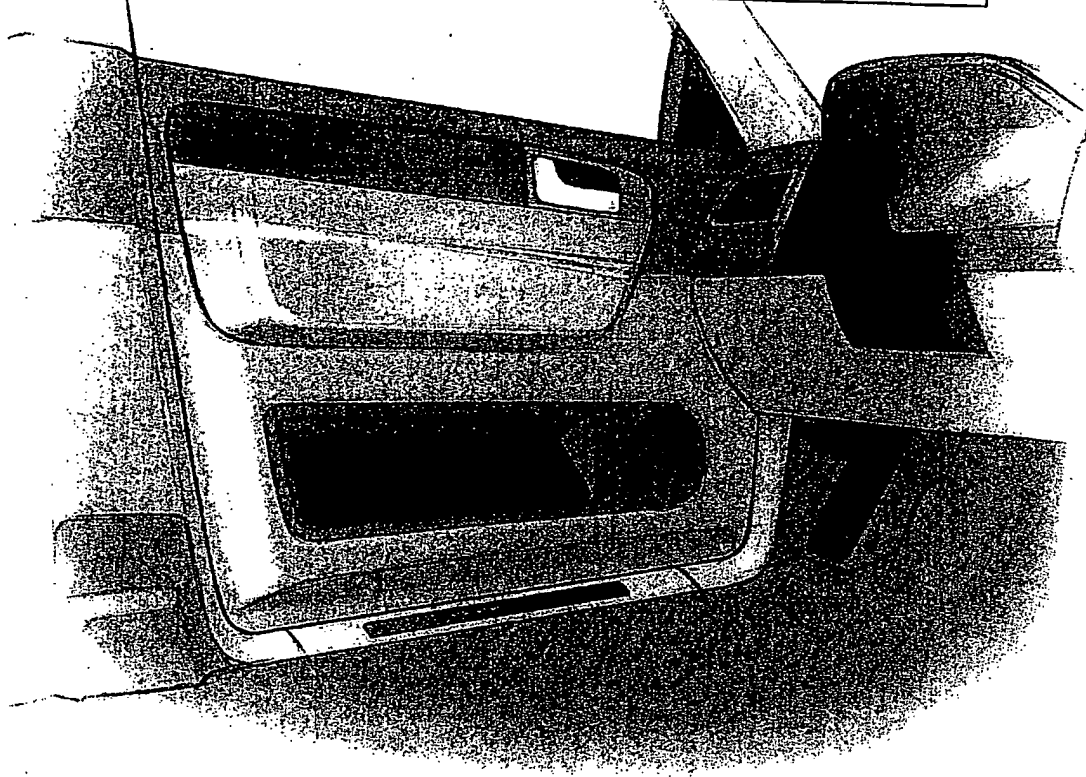


FIG. 30



Retractor concept for allowing vertical walls (parallel to die draw) to be full material thickness

In-Mold Two-Tone hard plastic Door/IP

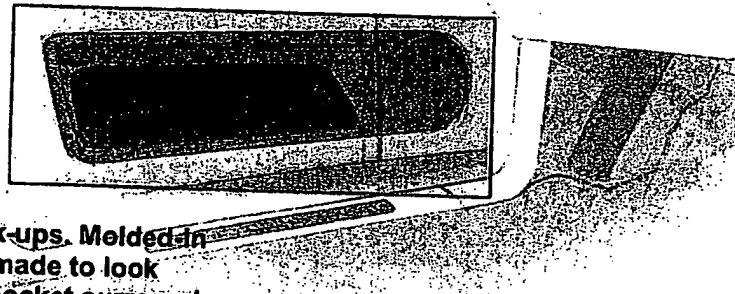
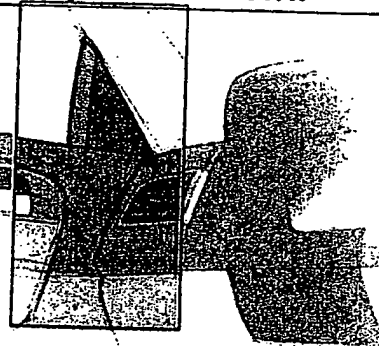


Styling Opportunities

FIG. 31

In-Mold Two-Tone hard plastic Door/IP

Several colors in one part like two-tone door look and separately-colored sail panels. Separate parts like soft-skinned area can bridge two colors without fit issues.



Isolated color break-ups. Molded-in speaker griller made to look separate, and map pocket surround. This would never be done with paint-masking techniques.

Styling Opportunities

FIG. 32

In-Mold Two-Tone hard plastic Door/IP

Multi-color pillar trim could allow two-tone 'flow-through' from front to rear and hide 'ugly' areas like seatbelt retractor packaging.

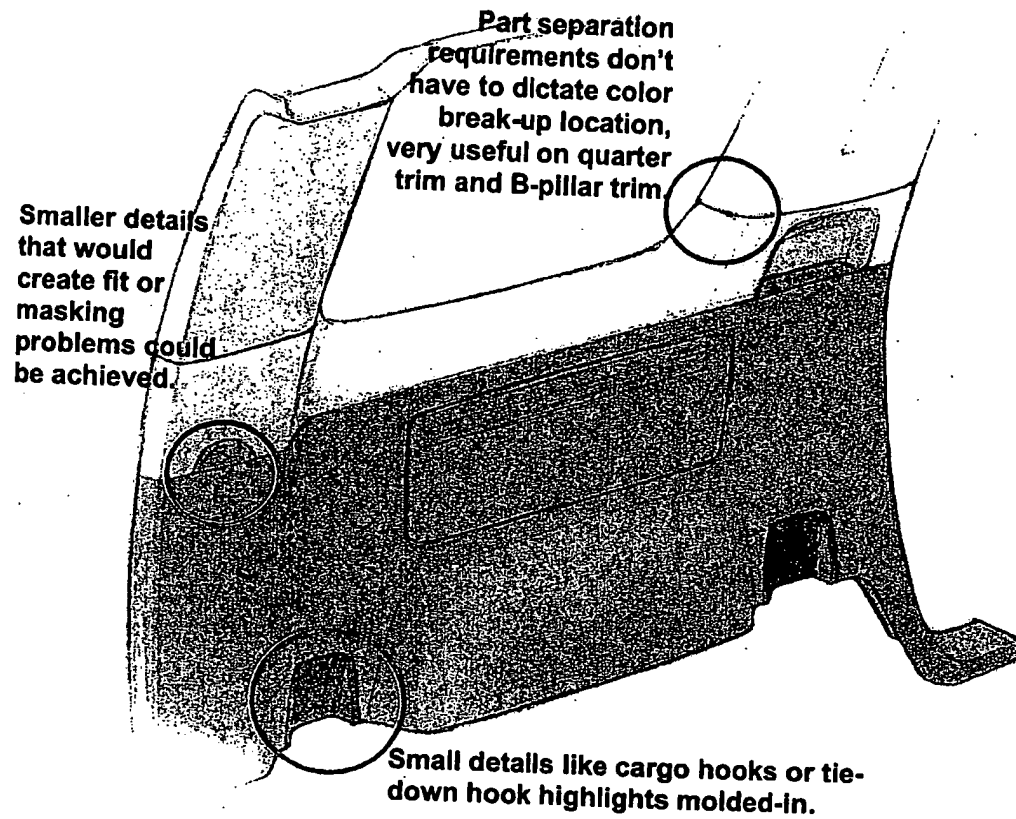
Lower cowl trim could be two-tone to visually clean-up trim to door.

Scuff plate accents molded-in

Styling Opportunities

FIG. 33

In-Mold Two-Tone hard plastic Door/IP



Styling Opportunities

FIG. 34

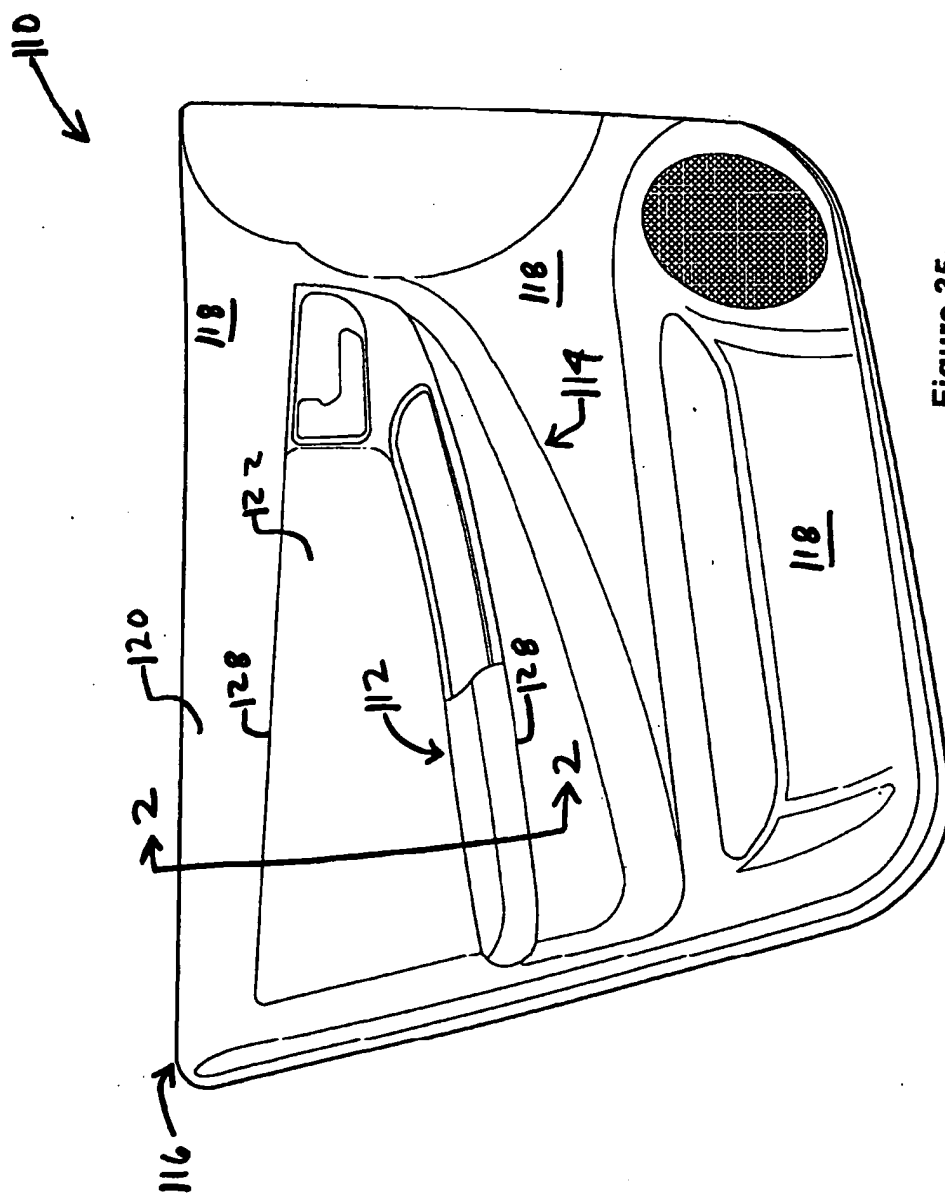


Figure 35

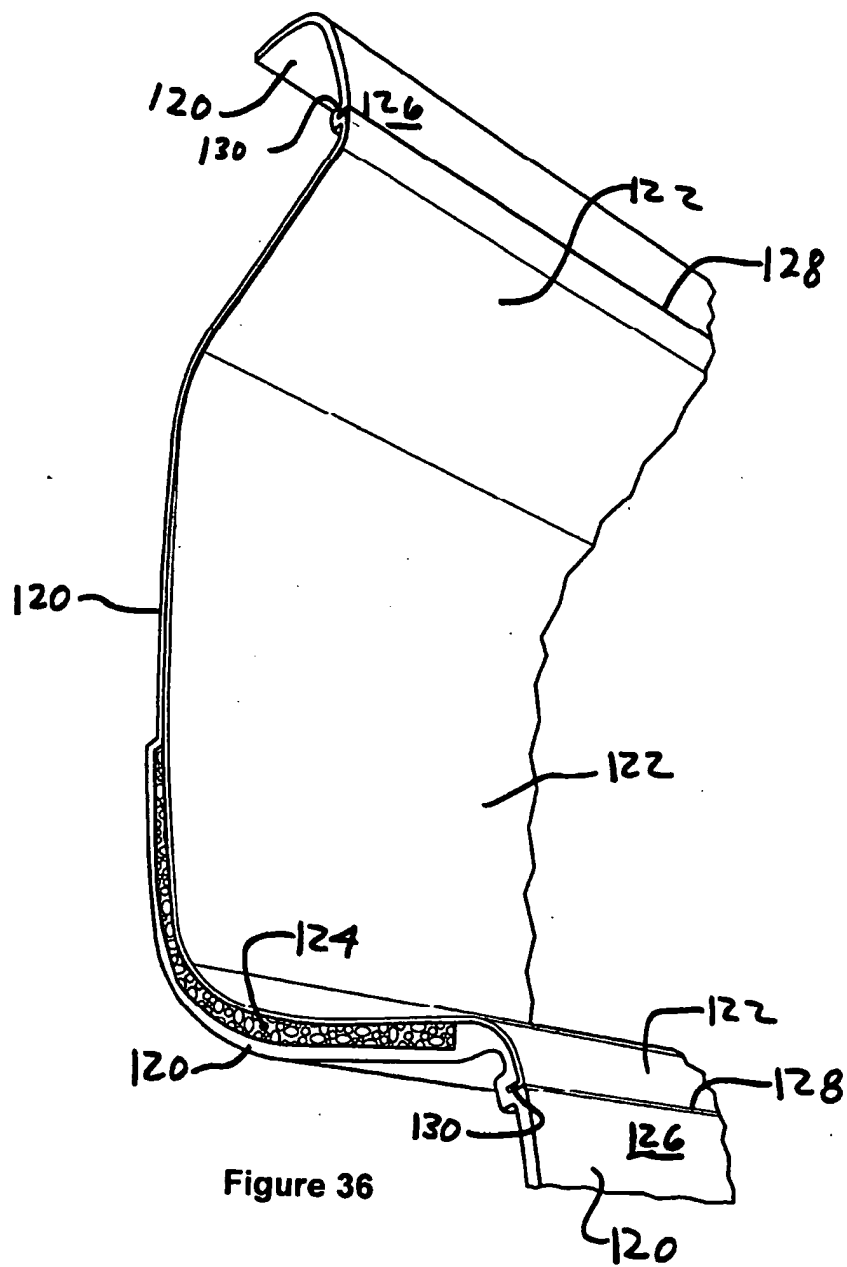


Figure 36

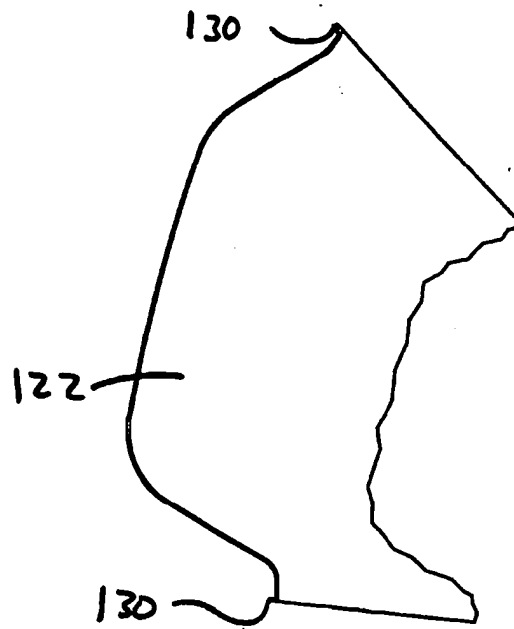


Figure 37

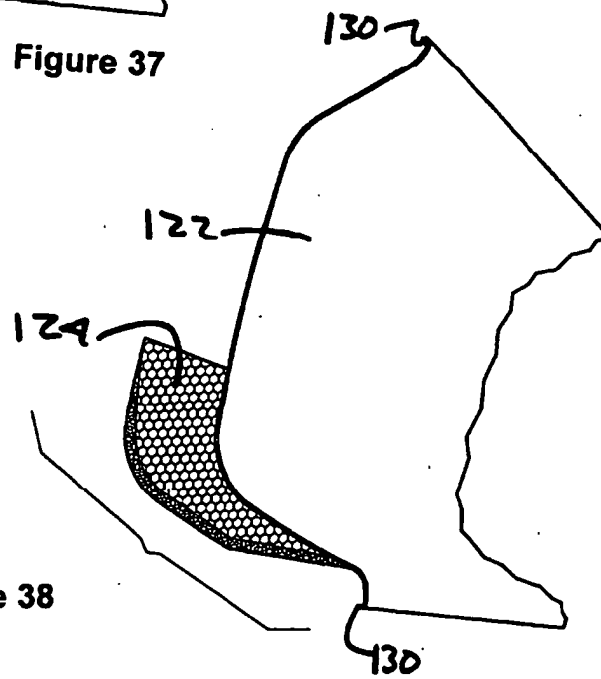


Figure 38

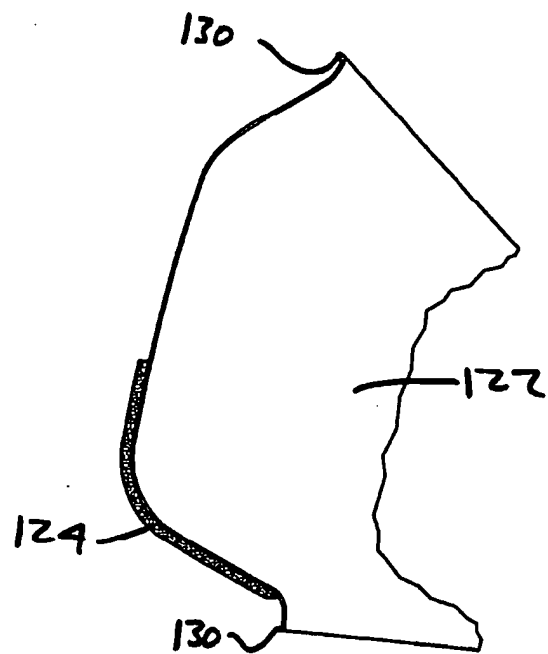


Figure 39

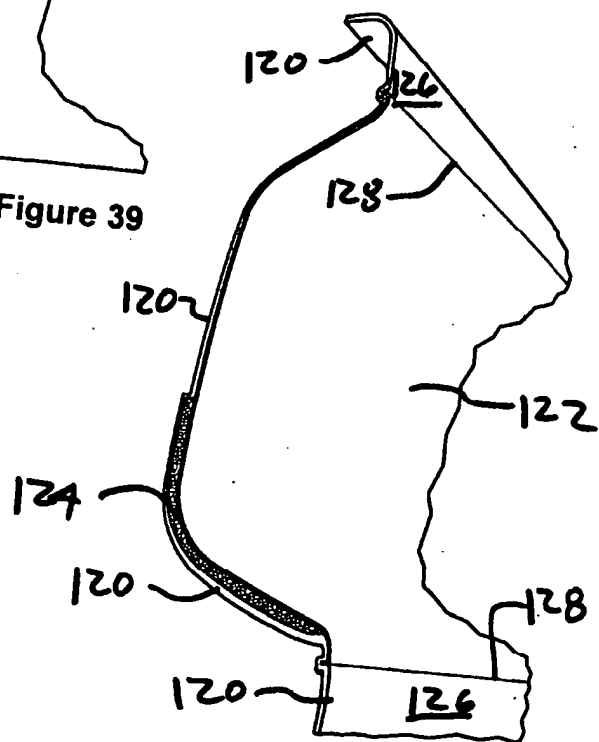


Figure 40

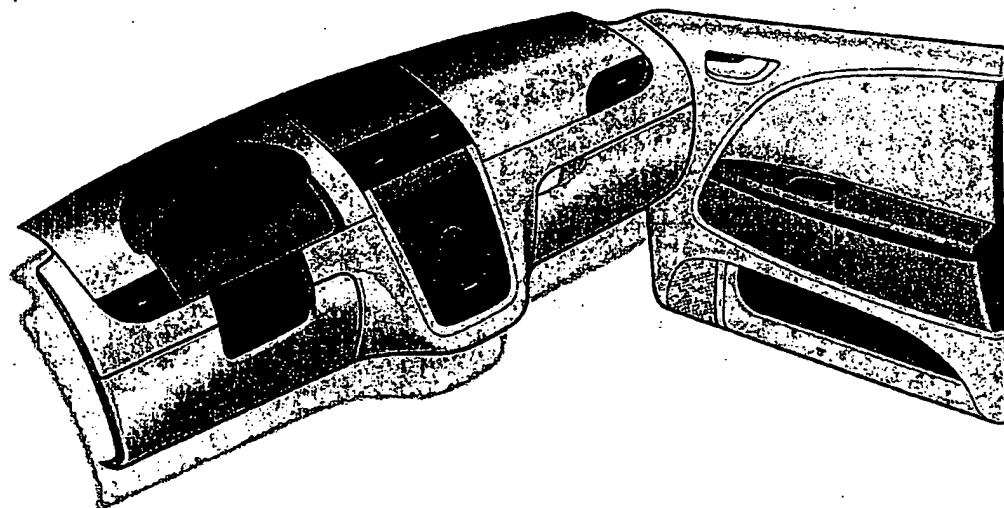


Figure 41

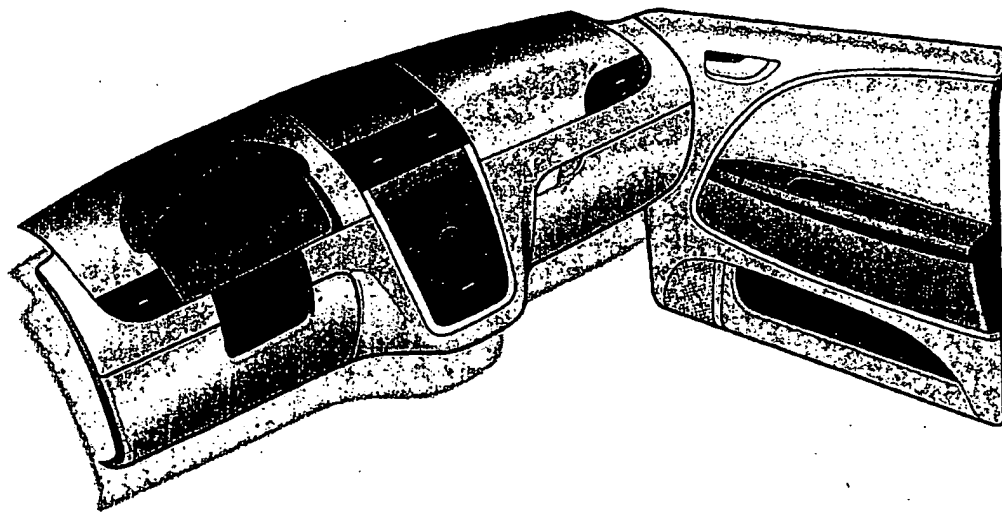


Figure 42

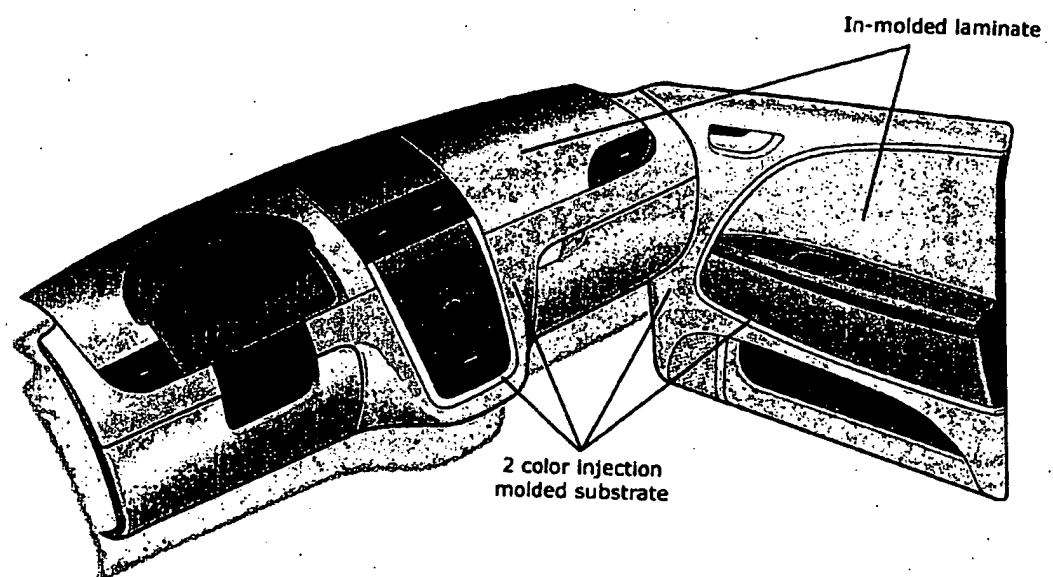


Figure 43

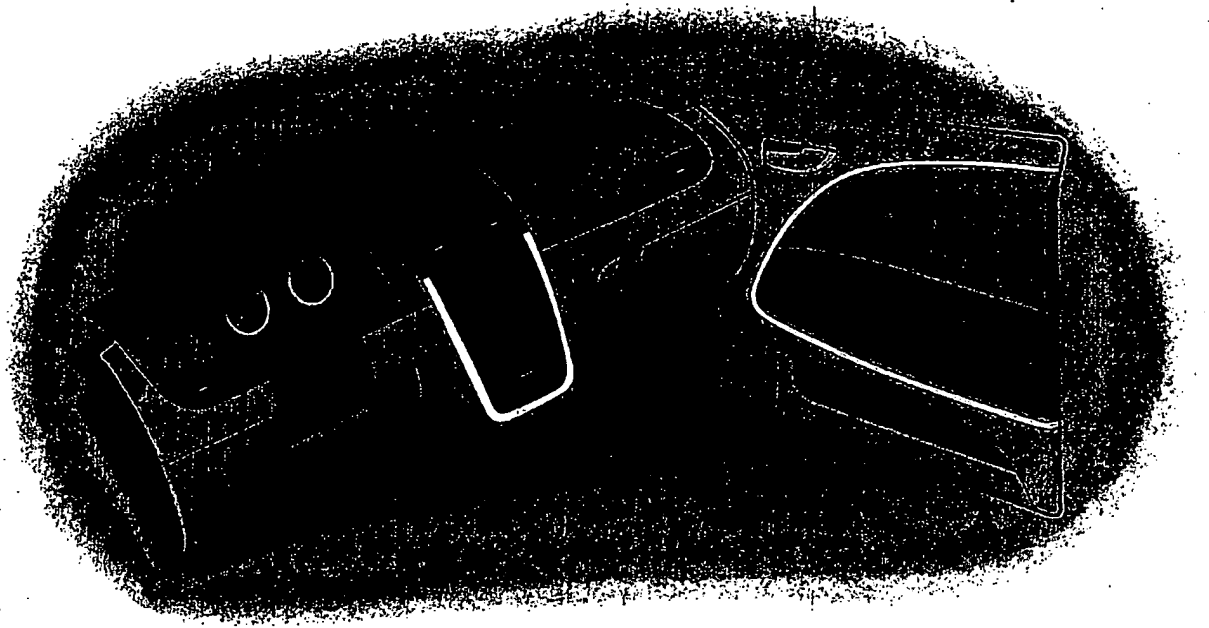


Figure 44

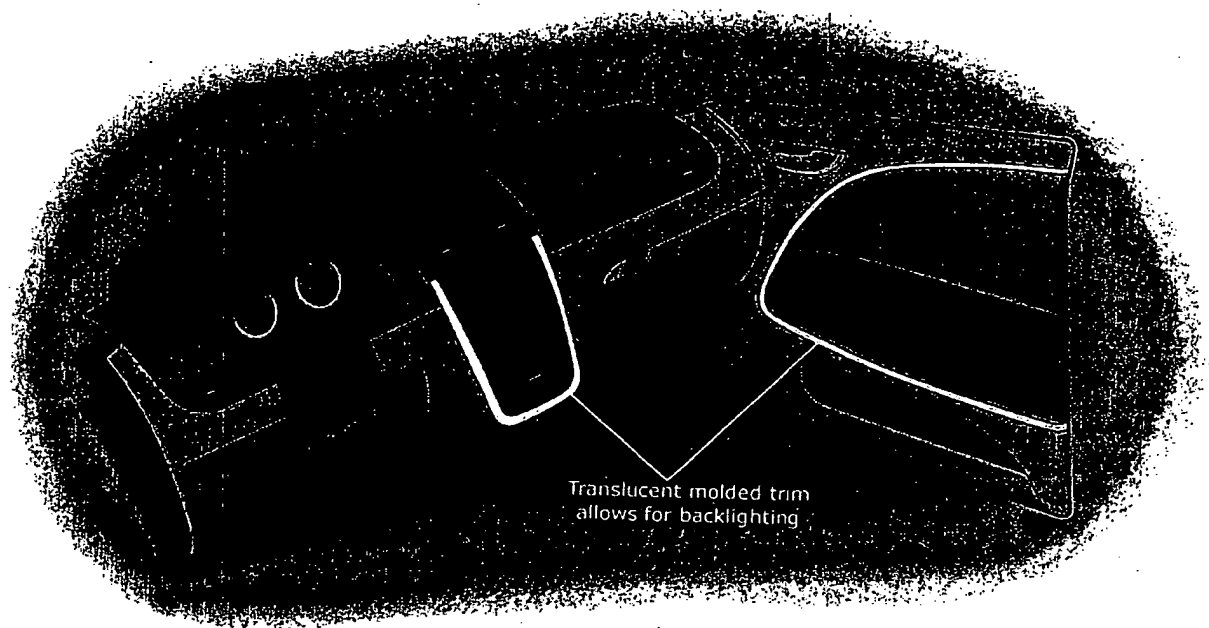


Figure 45

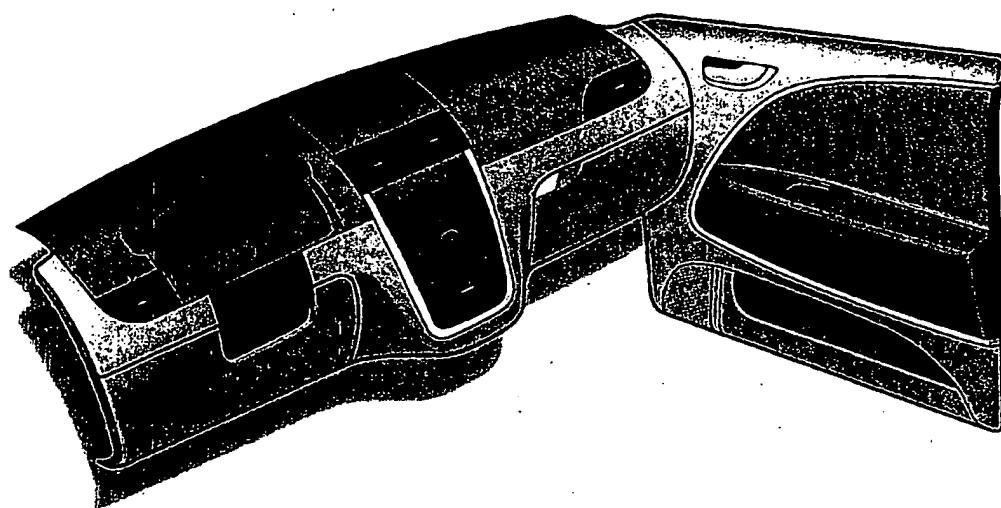


Figure 46